

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) ~~Process~~A process for producing a compound of the formula LiMPO₄, comprising:
 - a. producing a precursor mixture containing at least one Li⁺ source, at least one M²⁺ source and at least one PO₄³⁻ source, wherein M comprises at least one metal from the first transition series; in order to form a precipitate and thereby to produce a precursor suspension;
 - b. dispersing or milling the precursor mixture or suspension until the D90 value of particles in a precipitate of the precursor mixture or suspension are less than 50µm; and
 - c. obtaining LiMPO₄ from the precursor mixture or suspension by reaction under hydrothermal conditions.
2. (Currently Amended) ~~The process~~Process according to claim 1, characterized in that wherein the D90 value of the particles is at most 25µm.
3. (Currently Amended) ~~The process~~Process according to claim 1, characterized in that wherein M comprises Fe.
4. (Currently Amended) ~~The process~~Process according to claim 1, characterized in that wherein M is selected from Fe, Mn, Co and Ni and mixtures thereof.
5. (Currently Amended) ~~The process~~Process according to claim 1, characterized in that wherein the LiMPO₄ is in pure-phase form.

6. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~~~wherein~~ the dispersing or milling begins before or during precipitation of the particles in the precursor mixture or suspension and is continued until the precipitation has concluded.

7. (Canceled)

8. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~~~wherein~~ evaporation does not occur prior to the reaction of the precursor mixture or suspension under hydrothermal conditions.

9. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~~~wherein~~ sintering does not take place prior to the reaction of the precursor mixture or suspension under hydrothermal conditions.

10. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~~~wherein~~ the LiMPO₄ is dried following the reaction under hydrothermal conditions.

11. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~~~wherein~~ the production of the precursor mixture or suspension or the reaction under hydrothermal conditions takes place in the presence of at least one further component ~~selected from~~~~that is~~ a carbon-containing substance, an electron-conducting substance, the precursor of the electron-conducting substance, andor mixtures thereof.

12. (Currently Amended) The process~~Process~~ according to claim 11, ~~characterized in that~~~~wherein~~ the electron-conducting substance is ~~selected from~~ conductive carbon, carbon fibers andor mixtures thereof.

13. (Currently Amended) The process~~Process~~ according to claim 11, ~~characterized in that~~~~wherein~~ the precursor of the electron-conducting substance comprises a sugar compound.

14. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~wherein the Li⁺ source is ~~selected from~~ LiOH, Li₂CO₃ ~~and~~or mixtures thereof.

15. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~wherein the Fe²⁺ source is selected from FeSO₄, FeCl₂, FeNO₃, Fe₃(PO₄)₂, an organyl salt of iron and mixtures thereof.

16. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~wherein the PO₄³⁻ source is selected from phosphoric acid, a metal phosphate, hydrogen phosphate, dihydrogen phosphate and mixtures thereof.

17. (Currently Amended) The process~~Process~~ according to claim 1 ~~characterized in that~~wherein water is a solvent for the precursor mixture or suspension.

18. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~wherein the Li⁺ source and the M²⁺ source are in the form of aqueous solutions, and the PO₃³⁻ source is in the form of a liquid or an aqueous solution.

19. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~wherein the precipitate formed comprises at least one precursor of LiMPO₄.

20. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~wherein the hydrothermal conditions comprise a temperatures between 100 and 250°C, and a pressure from 1 bar to 40 bar.

21. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~wherein the components of the precursor mixture or suspension are present in a stoichiometric ratio ~~selected from~~of: a. 1 mole Fe²⁺:1 mole PO₄³⁻:1 mole Li^{*};

b. 1 mole

Fe^{2+} :1 mole PO_4^{3-} :3 mole Li^* , ~~and/or~~

c. any mixing ratio between a. and b.

22. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~wherein the reaction under hydrothermal conditions takes place under an inert gas atmosphere.

23. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~wherein the M^{2+} source and the PO_4^{3-} source are first mixed in an aqueous solvent under an inert gas atmosphere, followed by the addition of the Li^+ source under a protective gas or inert atmosphere, and then the reaction under hydrothermal conditions is carried out.

24. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~wherein the dispersing or milling comprises a treatment with a dispersing ~~means~~apparatuses ~~selected from~~ ~~Ultraturrax~~that are stirrers, mills, ~~such as colloid mills or Manton Gaulin mills~~, intensive mixers, centrifugal pumps, in-line mixtures, mixing nozzles, such as injector nozzles, ultrasound appliances ~~and/or~~ combinations thereof.

25. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~wherein a stirring mechanism is used for the dispersing or milling conducted along with the introduction of power, calculated according to the formula $P=2 \pi n M$, where M represents the torque and n represents the rotational speed, being at least 5 kW/m^3 .

26. (Currently Amended) The process~~Process~~ according to claim 11, ~~characterized in that~~wherein the further component is used as a crystallization nucleus in the precursor mixture or solution.

27. (Canceled)

28. (Previously Presented) The process of claim 1, wherein the LiMPO₄ has a mean particle size, D50 value of less than 0.8μm.

29. (Previously Presented) The process of claim 1, wherein the D10 value of the particles is less than 0.4μm and the D90 value is less than 3.0μm.

30. (Previously Presented) The process of claim 29, wherein the difference between the D90 value and the D10 value of the particles is no more than 2μm.

31. (Previously Presented) The process of claim 1, wherein the BET surface area of the particles is more than 3.5m²/g.

32. (Canceled)

33. (Canceled)

34. (Canceled)

35. (Canceled)

36. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~wherein the LiMPO₄, after the hydrothermal treatment is separated off by filtration or centrifuging, is dried and deagglomerated.

37. (Currently Amended) The process~~Process~~ according to claim 1, ~~characterized in that~~wherein the LiMPO₄, obtained from the hydrothermal treatment is mixed with at least one carbon precursor material, such as sugar or cellulose, by kneading.

38. (Currently Amended) The process~~Process~~ according to claim 37, ~~characterized in~~
~~that~~wherein the mixed material produced is dried and heated to a temperature between 500°C.
and

1000°C., during which operation the carbon precursor material is pyrolyzed to form carbon.

39. (Currently Amended) The process~~Process~~ according to claim 38, ~~characterized in~~
~~that~~wherein the pyrolysis process is followed by a milling or deagglomeration treatment.

40. (Currently Amended) The process~~Process~~ according to claim 38, ~~characterized in~~
~~that~~wherein the drying is carried out under a protective gas, in air or in vacuo at temperatures of
from 50° C. to 200° C., and the pyrolysis is carried out under a protective gas.

41. (Previously Presented) LiMPO₄ particles produced by the process of claim 1, wherein said
particles have a particle size distribution such that the D90 value for said
particle aggregates is less than 3.0 μ m.

42. (Previously Presented) The LiMPO₄ particles of claim 41, wherein the D90 value of said
particles is less than 2.0 μ m.

43. (Previously Presented) LiMPO₄ particles produced by the process of claim 1, wherein the
difference between the D90 value of the particles and the D10 value is no more
than 2 μ m.

44. (Previously Presented) LiMPO₄ particles of claim 43, wherein the difference between the
D90 and the D10 value is less than 1.5 μ m.